

# CISCO SYSTEMS





# Catalyst Switches Product Update

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# Agenda

- **Catalyst 6500 Sup32, Linecards**
- **Catalyst 4500 Sup2+TS, SupV-10GE**
- **Catalyst 4948**
- **Catalyst 3750 Power over Ethernet 10/100/1000 Switches**
- **Catalyst 3560 Power over Ethernet 10/100/1000 Switches**
- **Cisco Network Assistant**



# Catalyst 6500 Series

# Catalyst 6500® Series

## Scalable, Modular Chassis

Cisco.com

- **3-Slot Chassis**

Up to 11 chassis per 7' rack  
Sized for Metro, WAN, and small wiring closet

- **6-Slot Chassis**

Sized for medium-density wiring closets and backbone

- **9-Slot Horizontal Chassis**

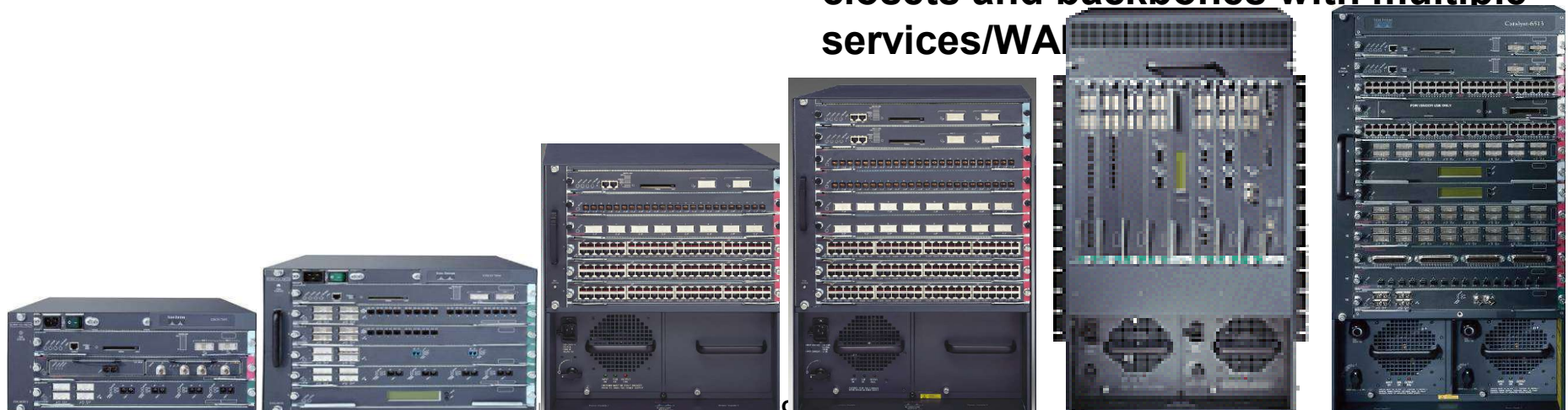
Sized for high density wiring closets and backbone

- **9-Slot Vertical Chassis**

For additional NEBS level 3 compliance, vertical slots and front-to-back airflow for Service Provider Central Offices and POPs

- **13-Slot Chassis**

Highest performance and density, optimized for high density wiring closets and backbones with multiple services/WAN



# Catalyst 6500 Family Evolution

## Catalyst 6500 Chassis Enhancements



Cisco.com

- **Enhanced Chassis**
  - **WS-C6503-E**
  - **WS-C6506-E**
  - **WS-C6509-E**
- Scalable to support **6000W and 9000W P/S**
- Backward Hardware Compatibility
- Backward Software Compatibility
  - **NO New Software Required**
  - SW upgrade required only to support new enhancements (e.g., new power supplies)
- **C6503-E – will support 67xx series line cards**



**Full Forward and Backward Compatibility for  
Maximum Investment Protection**



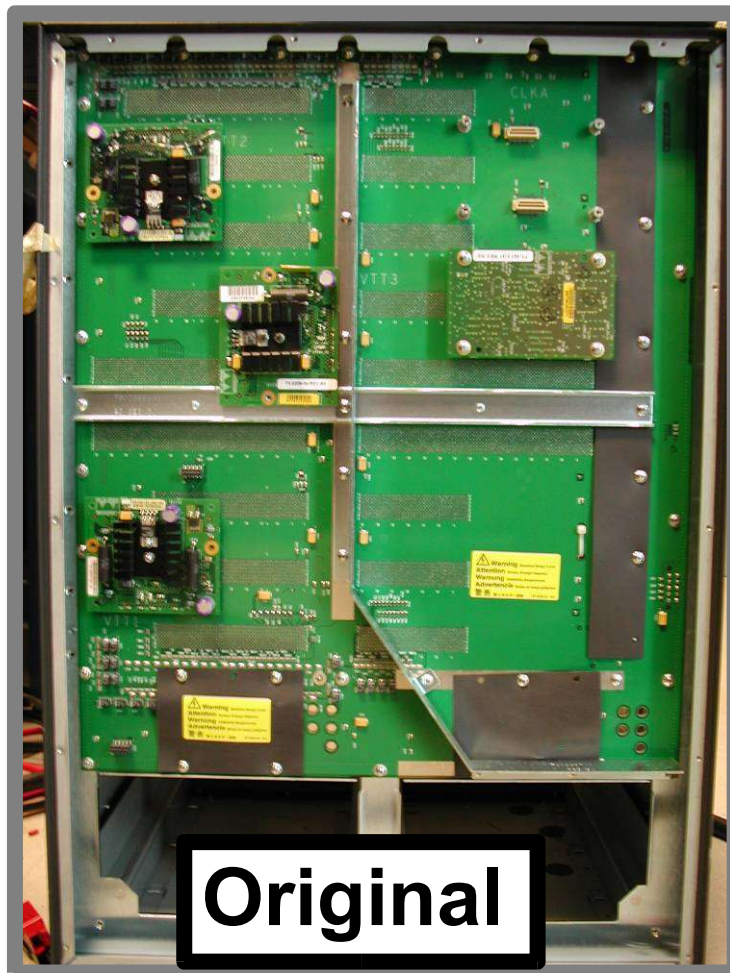
# Catalyst 6500 Family Evolution

## Chassis Enhancements

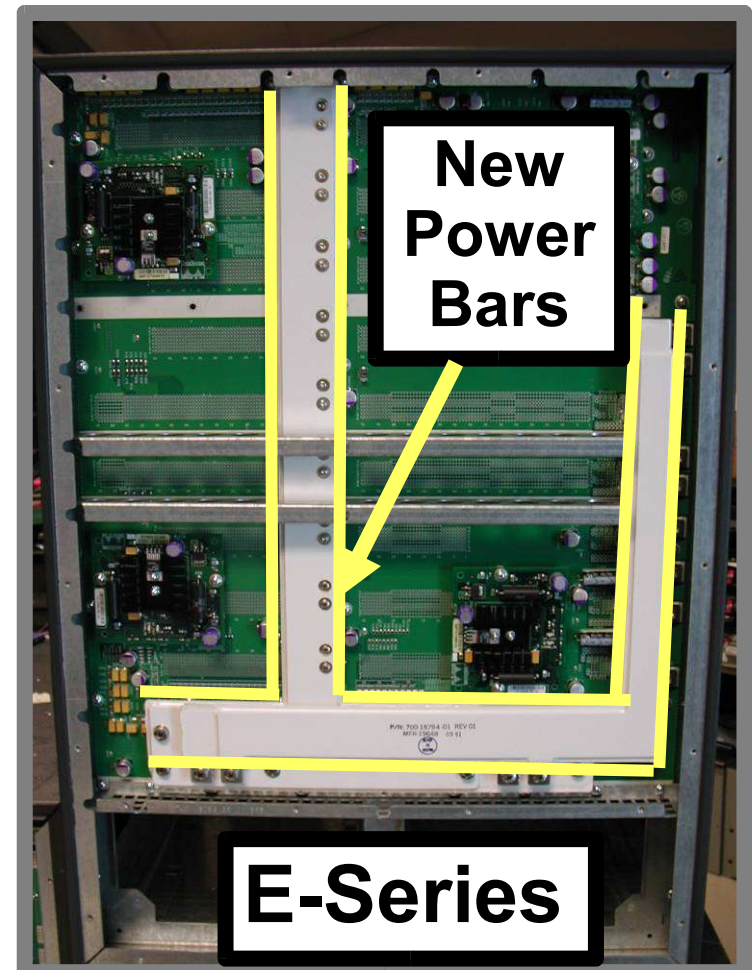


Cisco.com

### Backplane Differences



**Original**



**E-Series**

# 6000W Power Supply

Cisco.com



- Dual mode: 110V and 220V modes supported
- **Two inputs**
  - 3000W output when two 110V or one 220V input provided
  - 6000W output when two 220V inputs provided
  - Will not power up with single 110V input
- 17.6A max per input (20A power cord required)
  - Same power cord options as on existing 2500W unit: NEMA 5-20, NEMA 6-20, NEMA L6-20
- Both inputs single phase, fully independent circuits
- Total max chassis level heat dissipation ~24K BTU/hr
- Support in CatOS 8.4.1 & IOS 12.2(18) SXD



# 9000W Power Supply

- **Dual mode: 110V and 220V modes supported**
- **Three inputs**
  - 3000W output when two 110V or one 220V input provided**
  - 4500W output when three 110V inputs provided**
  - 6000W output when two 220V inputs provided**
  - 9000W output when three 220V inputs provided**
  - Will not power up with a single 110V input**
- **17.6A max per input (20A power cord required)**
  - Same power cord options as on existing 2500W unit: NEMA 5-20, NEMA 6-20, NEMA L6-20**
- **All inputs single phase, fully independent circuits**
- **Total maximum chassis level heat dissipation ~36K BTU/hr**

# Catalyst 6500 Supervisors

## Scalable Deployments

Cisco.com

### CORE & DISTRIBUTION / DATACENTER



#### Sup 2-MSFC2

- 256 Gbps L3 switching/services
- 30-210 Mpps
- List Price: \$22K

### ACCESS LAYER / WAN EDGE



#### Sup 2-PFC2

- 256 Gbps L2 switching/services
- 30 Mpps
- List Price: \$15K

### PFC3



#### Sup 720

- 720 Gbps, 400 Mpps
- Enhanced Security and Scalability
- List Price: \$28K to \$40K

NEW



#### Sup 32

- Built on Sup 720 Technology - Optimized for Access Layer
- 32 Gbps, 15 Mpps
- IPv4 & IPv6 Ready
- Ready for WLAN Integration
- Enhanced Security for Enterprise Access Layer
- \$10K NTE Bundle, \$15K Spare

# Catalyst 6500 Supervisors

## Supervisor Engine 32

Cisco.com

- Next generation supervisor for the **intelligent wiring closet**
- Offers upgradeability, flexibility, and intelligent services
- **Classic supervisor engine—no fabric, uses 32Gig bus**
- Ships with **PFC3B** forwarding engine
- Ships with **MSFC2a** routing engine
- Two uplink options:
  - 8xGE SFP** + 1x 10/100/1000 RJ-45
  - 2x10GE** + 1x 10/100/1000 RJ-45
- Note: IOS Sup32: **2H2005!**



**WS-SUP32-GE-3B**

# Supervisor Engine 32

## Hardware Overview

Cisco.com

MSFC2A  
routing engine

Non-  
disruptive  
OIR

256MB  
internal CF  
"bootdisk"

PFC3B  
hardware  
forwarding engine

RS-232  
console  
port

External  
CF slot

8x 1GbE SFP  
uplink ports

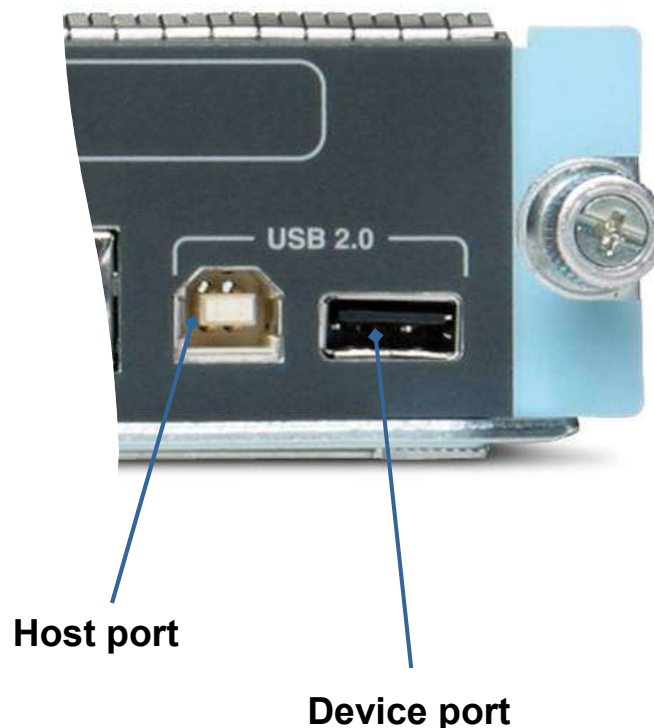
1x 10/100/1000  
RJ-45 interface

USB 2.0  
host and  
access  
ports

# Supervisor Engine 32

## USB ports

- Two USB 2.0 ports
  - Host port** (Type B port)  
interfaces with a standard host such as a PC
  - Device port** (Type A port)  
interfaces with devices such as USB disks or USB keys
- Not enabled at FCS
  - Will be enabled in a **future software release**
- Targeted functionality:
  - Console connection**
  - Image download**
  - Disaster recovery**
  - USB key to unlock console**



# Supervisor Engine 32

## Upgradeability

Cisco.com

- Ships with PFC3B/MSFC2A  
by default
- Upgrade PFC3B to PFC3BXL
- Potential to upgrade to future forwarding engines as they become available





# Supervisor Engine 32

## Chassis Requirements

Cisco.com

### Chassis support:

- Any 6500 series chassis
- Any 6500-E chassis
- Not supported in 6000 chassis
- **Requires high speed fan tray (FAN2/E-FAN)**
- Requires 2500W power supply (AC or DC) or greater
- Same slot requirements as Supervisor 720
  - 1&2 in 3 slot, 5&6 in 6/9 slot, 7&8 in 13 slot



# Supervisor Engine 32

## Module Support

Cisco.com

### Module support:

- All Classic modules
- All CEF256 modules (without a DFC)

Including WAN and service modules

### Does not support:

- CEF720 modules (67xx series)
- WS-X6816-GBIC
- Any module with DFC or DFC3
- SFM/SFM2



# Supervisor 32

## Layer 2 Feature Comparison with earlier Supervisors

Cisco.com

Feature	Supervisor 1A	Supervisor 2	Supervisor 32
L2 MAC Addresses	128K(32K effective)	128K(32K effective)	64K(32K effective)
Security ACL Entries	16K Entries	32K Entries	32K Entries
QOS ACL Entries	16K Entries	32K Entries	32K Entries
ACL Labels	512	512	4096
ACL Masks	2K	4K	4K
ACL LOU's	32	32	64
DHCP Snooping	Yes	Yes	Yes
Dynamic ARP Inspection	No	Yes	Yes
IP Source Guard	No	No	Yes
SP CPU DOS Protection	No	No	Yes

# Supervisor 32

## Layer 3 Feature Comparison with earlier Supervisors

Cisco.com

Feature	Supervisor 1A	Supervisor 2	Supervisor 32
Forwarding Architecture	Flow Based	CEF Based	CEF Based
Max L3 Interfaces	1000	2000	>=2000
Adjacency Table Size	N/A	256K Entries	1M Entries
Netflow Entries	128K(32K Effective)	128K(32K Effective)	128K(115K Effective)
Control Plane Policing	No	No	CoPP Ready
Security RACLs	Yes (32K Entries)	Yes (32K Entries)	Yes (32K Entries)
HSRP Groups	256	16	256
Sampled Netflow	No	Yes	Yes
MPLS in Hardware	No	No	MPLS Ready
IPV6 in Hardware	No	No	IPV6 Ready
GRE in Hardware	No	No	GRE Ready
NAT/PAT in Hardware	No	No	NAT/PAT Ready

# Supervisor 32

## QoS Feature Comparison with earlier Supervisors

Cisco.com

Feature	Supervisor 1A	Supervisor 2	Supervisor 32
GE Port QoS	1p2q2t	1p2q2t	1p3q8t
Structure TX	1p1q4t	1p1q4t	2q8t
Structure RX	512Kb	512Kb	4.7Mb
Per Port Buffer			
QoS ACL's	16K	32K	32K
Dual Rate Policers	No	Yes	Yes
Egress Policing	No	No	Yes
Per Port Per VLAN Policing	No	No	Yes
User Based Rate	No	No	Yes
DSCP Transparency	No	No	Yes

# Wiring Closet Supervisors

## Comparison

Cisco.com

Feature	Sup1A/PFC	Sup2/PFC2	Sup32/PFC3B
Backplane	32Gbps Shared Bus	32Gbps Shared Bus or 256Gbps Crossbar Fabric	32Gbps Shared Bus
SP CPU	Orion RISC 150Mhz	R7K 300 MHz	BCM1120 400 MHz
SP NVRAM	512KB (SP)	512KB (SP)	2 MB (SP)
SP DRAM	128 MB Default	128MB Default (Upgradeable to 512MB)	256MB Default (Future upgradeable to 1GB)
SP Bootflash	16MB	32MB	256MB CF "bootdisk:"
Removable Storage	PCMCIA	PCMCIA, ATA Flash	Compact Flash, USB
Uplink ports	2x GBIC Uplinks	2x GBIC Uplinks	8x 1GbE SFP + 10/100/1000 -or- 2x 10GbE Xenpak + 10/100/1000
MSFC	MSFC/MSFC2 Optional	MSFC2 Optional	MSFC2a Default



# Field Upgradable PFC3 / DFC3 Family

## Feature Rich *H/W Performance*

Cisco.com



- Separates control and data planes
- Mirrored with DFC3x delivering up to 400Mpps L2-4
- Hardware-based IPv4, QoS, ACL, **IPv6, MCAST, MPLS, PAT/NAT, GRE**
- Modular feature evolution: enable new features via daughter card upgrade (investment protection)

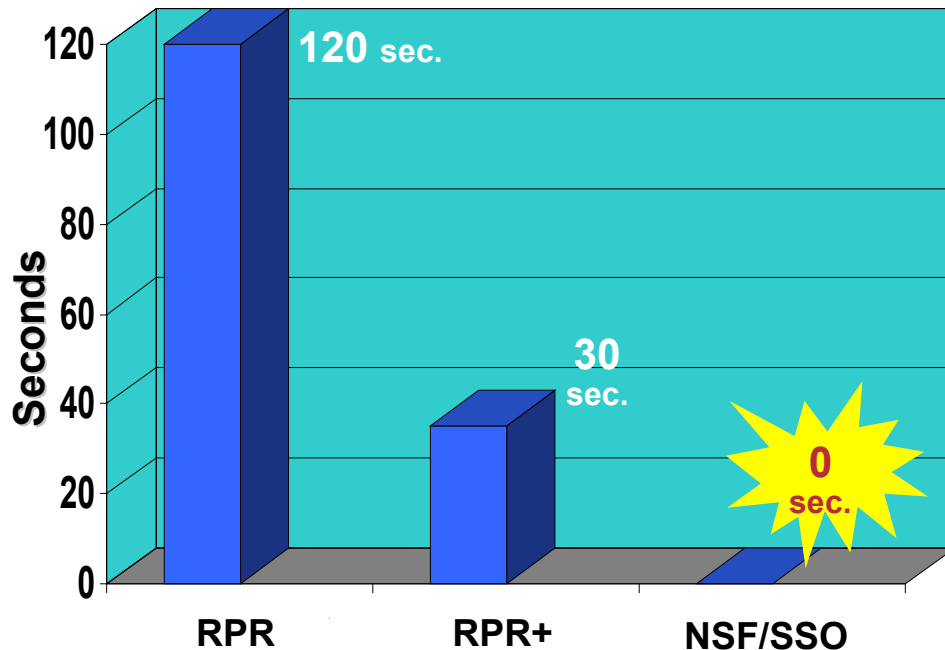
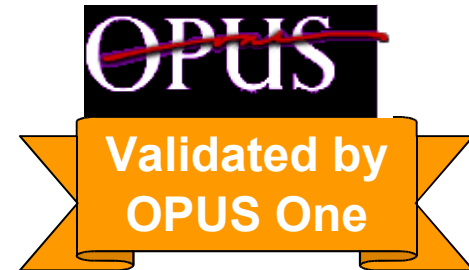
	PFC3a	PFC3b <b>New</b>	PFC3b-XL <b>New</b>
# Routes	256k	256k	1M
# ACLs	512	4,000	4,000
Netflow Entries	128,000	128,000	256,000
ACE Counters	No	Yes	Yes
MPLS	No	Enhanced (adds EoMPLS, IP Options)	Enhanced (adds EoMPLS, IP Options)
Baseboard Supported	Sup720	Sup720/Sup32	Sup720/Sup32
DRAM	SP 512MB + RP 512MB	SP 512MB + RP 512MB <b>New</b>	SP 1GB + RP 1GB <b>New</b>
Matching DFCx (Feature Consistency)	DFC3A w/ 256Mb Memory (\$7500)	DFC3b w/ 256Mb Memory (\$7500)	DFC3bxl w/ 1Gb Memory (\$15000)

# Catalyst 6500 Resilient Routing

## NSF / SSO

Cisco.com

Networks built with Catalyst 6500 Series Switches deliver **zero packet loss** on Supervisor failovers



Catalyst 6500 Switches with dual Supervisors

### Cisco NSF/SSO

- NO Link Flaps
- NO Route Flaps
- Zero impact to Data/Voice/Video
- Supported on ALL 6500 Chassis

Certified QoS & Security with HA

Only LAN switching platform to deliver **BOTH L2 AND L3** Resiliency

**Catalyst 6500 L2/L3 Resiliency: Enabling Non-Stop Application Delivery**

# CiscoView Device Manager

## Simplifies Configuration, Monitoring and Management

**New**

Cisco.com

### ServiceFlow Visualization & Configuration

Interface	VLAN-ID	IP Address	Mask	Security Level
outside	400	172.20.20.90	255.255.255.0	0
inside	401	172.20.20.45	255.255.255.0	100
dmz2	402	172.20.50.50	255.255.255.0	2
dmz3	403	173.20.50.50	255.255.255.0	3
dmz4	404	174.20.50.50	255.255.255.0	4
dmz5	425	175.20.50.50	255.255.255.0	5
dmz7	426	177.20.50.50	255.255.255.0	7
dmz8	427	178.20.50.50	255.255.255.0	8
dmz9	428	179.20.50.50	255.255.255.0	9
dmz10	429	180.20.95	255.255.255.0	10
dmz11	430	181.20.95	255.255.255.0	11

### Simplified L4-7 Services Setup & Configuration

**MSFC - Outside Scenario**

The MSFC-outside design typically applies to an intranet data center. Placing the MSFC outside in the intranet data center means that the MSFC faces the core. With the MSFC-outside design, the default gateway for the servers is either the FWSM or the CSM.

Launch Setup Wizard

**Inventory & Port Status**

**Continuously Updating Ports / Interfaces**

**Best Practice Configuration Templates**

# Catalyst 6500 New Access Layer Options

## High Density 10/100 & 10/100/1000

Cisco.com

### WS-X6148A-RJ45



- 48-port 10/100 Classic Line Card
- New Integrated TDR for cable fault detection
- Optional 802.3af POE daughter card
- List Price: \$6,000
- Availability: Q4 CY04 (CatOS & Hybrid)

TDR  
Jumbo Frame  
QoS  
PoE

### WS-X6196-RJ-21



- High Density 96-Port 10/100 Classic Line Card
- Twice the density in a single slot with standard RJ-21 connectors
- Optional 802.3af PoE daughter card
- List Price: \$10,500
- Availability: Q4 CY04 (CatOS & Hybrid)

### WS-X6148A-GE-TX



- 48-Port 10/100/1000 Classic Line Card
- New support for Jumbo Frames, QinQ Tunneling, WRED
- Integrated TDR for cable fault detection
- Optional 802.3af PoE daughter-card
- List Price: \$7000
- Availability: Q4 CY04 (CatOS & Hybrid)

TDR  
Jumbo Frame  
QoS  
PoE

# Catalyst 6500 Fiber Connectivity

## New 48-port 100Base SFP Line Card

New

Cisco.com

### WS-X6148-FE-SFP



- High density 48-port 100Base SFP
- New support for broadcast/multicast/unicast suppression, VLAN translation, port security, WRED
- Scales cost-effectively from 48 to 576 100 Mbps ethernet per system
- List Price: \$9000
- Availability: Q4 CY2004 (CatOS & Hybrid)

### GLC-FE-100FX



#### New SFPs for use in the WS-X6148-FE-SFP

- 100BASE-FX Transceiver, w/ LC Connector
- Supports 2Km (full duplex mode), 400m (half duplex mode) over multi mode fiber
- List Price: \$250
- Availability: Q4 CY2004

### GLC-FE-100LX

- 100BASE-LX Transceiver, w/ LC Connector
- Supports 10Km over single mode fiber
- List Price: \$400
- Availability: Q4 CY2004

### GLC-FE-100BX-U

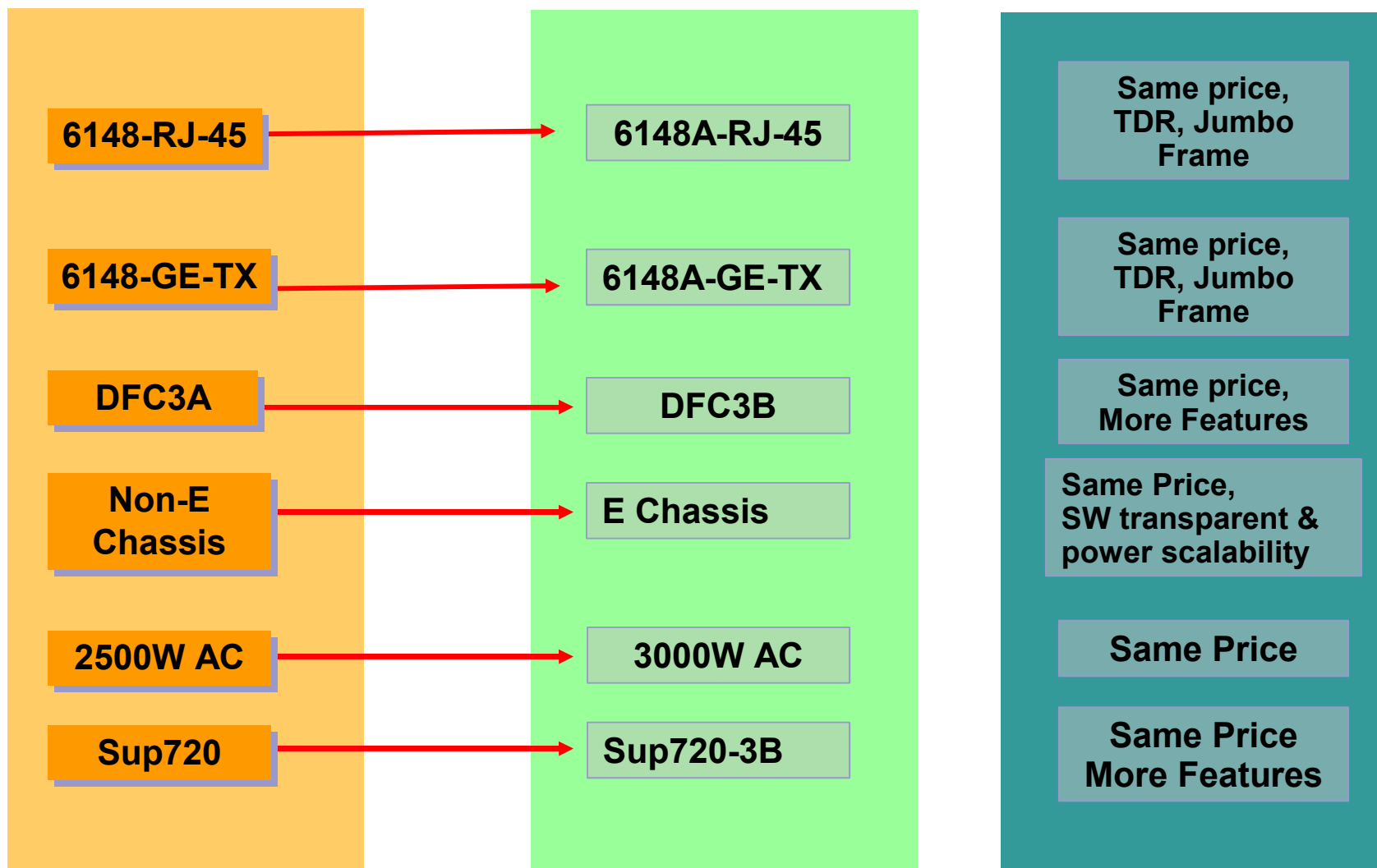
### GLC-FE-100BX-D

- 100BASE-BX Transceivers, w/ LC Connector
- Supports 10Km over single strand of single mode fiber
- List Price: \$450

# Cisco Catalyst 6500

## Key Hardware Product Transition Update

Cisco.com



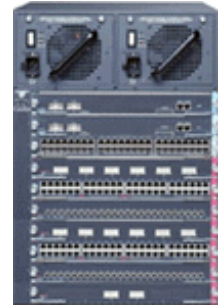




# Catalyst 4500 Series

# Cisco Catalyst 4500 Series Chassis Specs

Cisco.com



Catalyst 4503

Catalyst 4506

Catalyst 4507R

Catalyst 4510R

**Sup Redundancy**

n/a

n/a

Yes

Yes

**Slots**

3

6

7

10

**Ports (max) + GE**

96+2

240+2

240+4 (Sup5)

380+ 2 10GE

**Dimensions (RUs)**

7

10

11

14

**Power Supplies**

1+1

1+1

1+1

1+1

**Supervisors**

Sup2 – Sup5

Sup2 – Sup5

Sup2+,4,5

Sup5

# Catalyst 4503 Series SMB Solution

## Introducing Supervisor II-Plus-TS

**New for  
SMB**

- **Designed specifically for SMB Networks and Enterprise Branch offices**
- **Increases Catalyst 4503 maximum port density to 116 total ports**
- **12 wire speed 10/100/1000 ports with PoE and 8 SFP ports built in on the front faceplate of the Supervisor**
- **Two available line card slots compatible with all Catalyst 4500 Series line cards**

- **Cisco IOS based Layer 2 Supervisor with Layer 3 & Layer 4 services exclusively for the Catalyst 4503**
- **Based on Catalyst 4500 Supervisor II-Plus Hardware and Software**
- **Faceplate ports have many uses including PoE device connections, server connections, uplinks, gigabit aggregation or user ports**



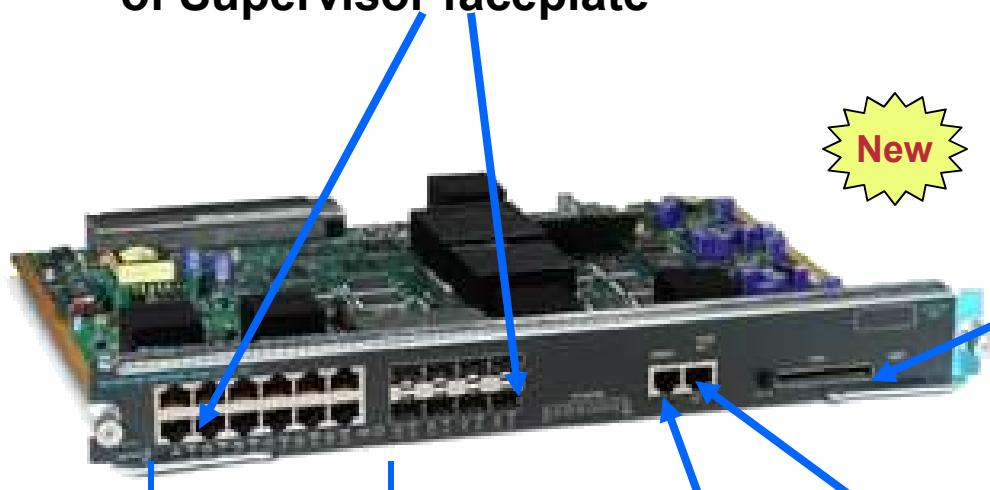
**New**

# Catalyst 4503 Supervisor II-Plus-TS

## A Closer Look

Cisco.com

- 12 wirespeed 10/100/1000BaseT ports, 8 wirespeed SFP ports on front of Supervisor faceplate



**New**

- Removable Compact Flash, with Front-panel insertion

- 10/100 Ethernet management (RJ-45) for Disaster Recovery

- Console port (RJ-45) with Front-panel interface

IEEE 802.3af and Cisco pre-standard PoE support on all twelve 10/100/1000 faceplate ports (maximum of 160 watts total over the twelve ports allocated in any combination)

# Catalyst 4503 Supervisor II-Plus-TS Specifications

Cisco.com

- Catalyst 4503 Only
- 64 Gbps Switching Capacity, 48 Million packets-per-second forwarding rate
- Support for Jumbo Frames on all non-blocking GE ports (including 10/100/1000 faceplate ports)
- Extensive Wire Rate Security and QoS Features
- Support for 32K MAC Addresses
- Support for 4K VLANs
- 802.1Q VLAN Tagging on all ports
- RIP v1, v2 and Static Routes
- 32K IPv4 FIB unicast and multicast forwarding entries
- (IOS 12.2(20)EWA or later)



# Catalyst 4500 Series Supervisor V-10GE



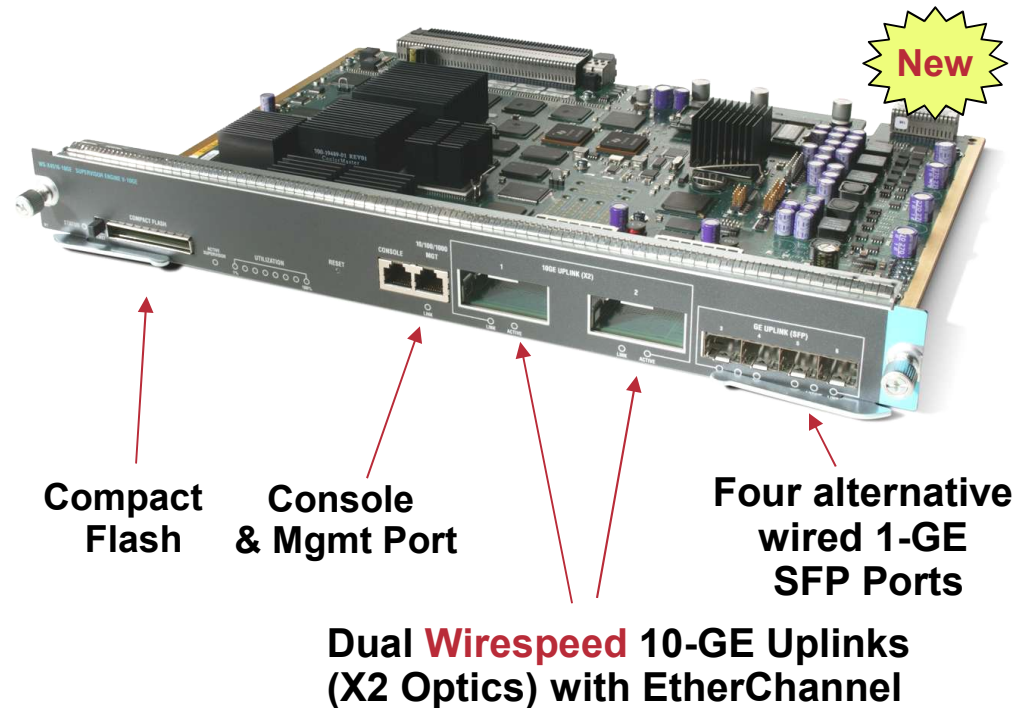
# Introducing Catalyst 4500 Supervisor Engine V-10GE

## Positioned for High Performance Wiring Closets

Cisco.com

## Introducing Supervisor V- 10GE

- 136 Gbps Switching Fabric  
102 Mpps L2/L3/L4 throughput
- Dual Wire-Speed 10GE Uplinks
- Integrated NetFlow on motherboard with enhanced features
- Supported Exclusively in all Catalyst 4500 Series Chassis





# Catalyst 4500 Supervisor Engine V-10GE

## Future Proof Your Network!

Cisco.com

### ...A Closer Look

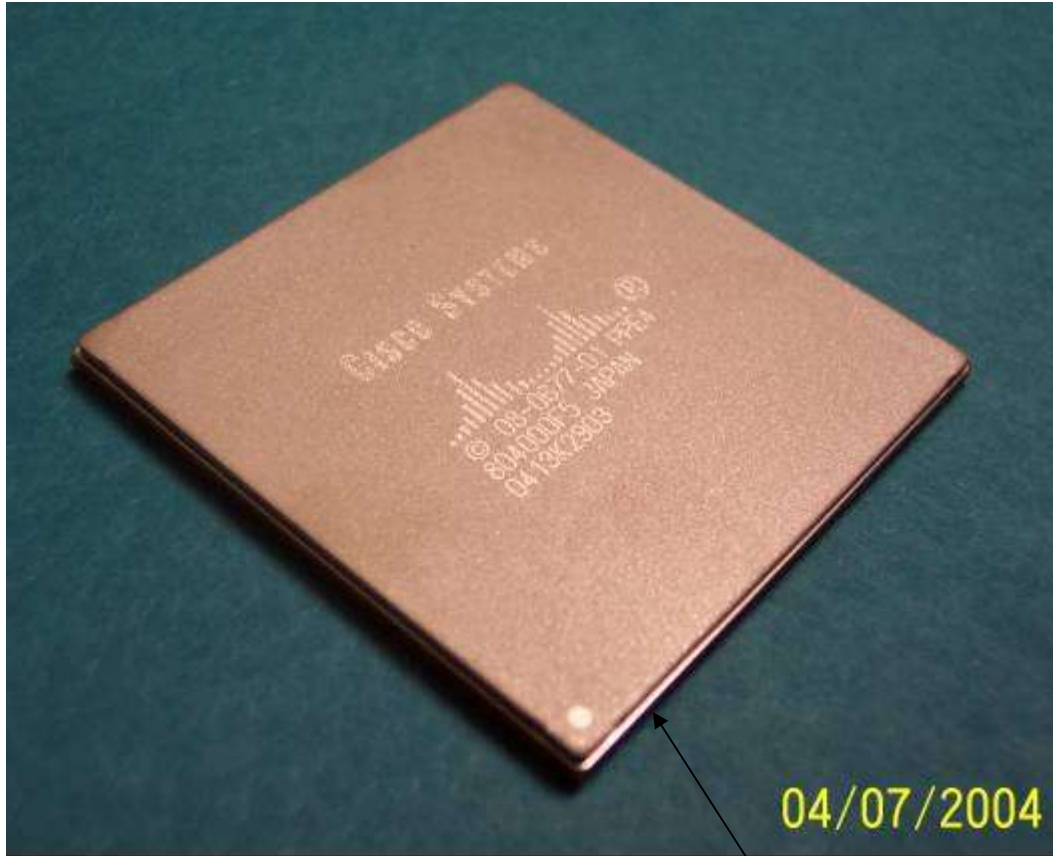
- 1-GE SFP Uplinks Provide Smooth 10-GE Transition
- Supports Full Redundancy (SSO Capable) in Catalyst 4507R & 4510R
- Two Active 10-GE or Four Active 1-GE SFP ports in Single or Redundant mode
- Ultra-Fast 800 MHz CPU for Multi-Gigabit processor switching
- Supports up to 384 10/100/1000 ports in a Catalyst 4510R



**Future Proof your Network!**  
Use the 1 GE SFPs today...  
...Enable 10-GE uplinks  
when needed

# Supervisor V-10GE PPE4 ASIC Fun Facts

Cisco.com



NAND gate

2<sup>nd</sup> complex Cisco  
ASIC after CRS1  
Metro

Die Size	16.85mm x 16.85mm
# of engr yrs	40
Total SRAM	7.5 Mbits
Metal Layers	9 Aluminum
Gates	7.0 Million
Transistors	90 Million
Signal Pin	1548
Package IO (# of pins)	2209
Total metal length	> 300 meters
Total Power	25 Watts

# New with Catalyst 4500 Supervisor V-10GE

## Layer 3 Supervisor Comparison

Cisco.com



Attribute	Supervisor IV	Supervisor V	Supervisor V-10GE
L2/3 Capacity	64 Gbps	96 Gbps (4510R)	136 Gbps (4510R)
L2/3 Throughput	48 Mpps	72 Mpps (4510R)	102 Mpps (4510R)
Active Uplinks	2 GE (non-redundant) 2 GE (redundant)	2 GE (non-redundant) 4 GE (redundant)	2 10-GE (non-red or red) 4 GE (non-red or red)
Platform Support	Catalyst 4503 Catalyst 4506 Catalyst 4507R Catalyst 4006	Catalyst 4503 Catalyst 4506 Catalyst 4507R Catalyst 4510R Catalyst 4006	Catalyst 4503 Catalyst 4506 Catalyst 4507R Catalyst 4510R
NetFlow	Daughter Card Option	Daughter Card Option	Integrated (with new features)
Catalyst 4510R Slot-10 line card support	N/A	2-Port GE AGM (EoS)	Any Line Card
CPU	333 MHz	400 MHz	800 MHz
Q-in-Q, M-cast & B-cast Suppression in HW	No	Yes	Yes
Max Port Density	240	336 (4510R)	384 (4510R)

# 10-GE X2 Optical Portfolio

## For Multi-Mode and Single Mode Fiber

Cisco.com

X2 Module Type	Description	Availability
X2-10GB-LR	10 km on SMF (G.652)	Q4 CY 04
X2-10GB-CX4	Up to 15 meters on Cx4 cable	Q1 CY05
X2-10GB-LX4	300m on MMF	Q2 CY05
X2-10GB-SR	26m on MMF (300 m with 2000 Mhz/km MMF)	Future
X2-10GB-ER	40 Km on SMF	Future

**Smaller  
Form Factor**

XenPAK

**New**

X2



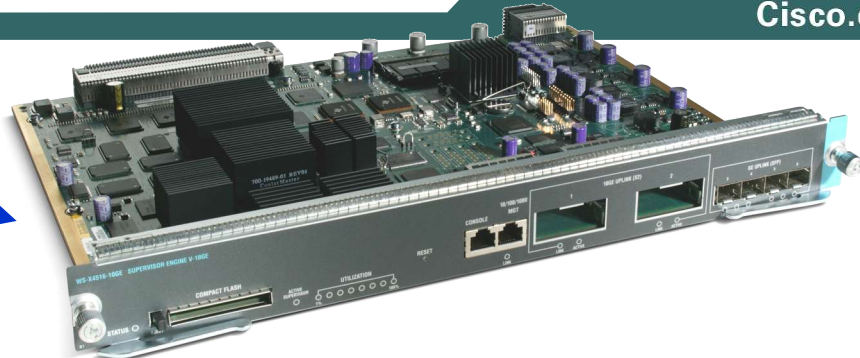
**Optical Compatibility Between 10-GE X2 and XenPak**

# Supervisor V-10GE & Embedded NetFlow

## Enhanced NetFlow features

Cisco.com

**Built-in NetFlow functionality  
(Daughter card NOT required!!)**



- Provides packet capture on a per Flow/VLAN basis
- Additional NetFlow functionality from Supervisor IV and V daughter card:
  - Support for 85K flows (from 64K)
  - Increased total Policers: 8000 ingress and 8000 egress policers (from 1K and 1K)
  - Support for more granular policing: Per port (aggregate) and per flow (microflow)
  - Support for 512 different User Based Rate Limiting profiles
  - Increased packet capture information for the following applications:

**New**

Traffic monitoring

Network planning

Enables granular accounting for usage-based billing

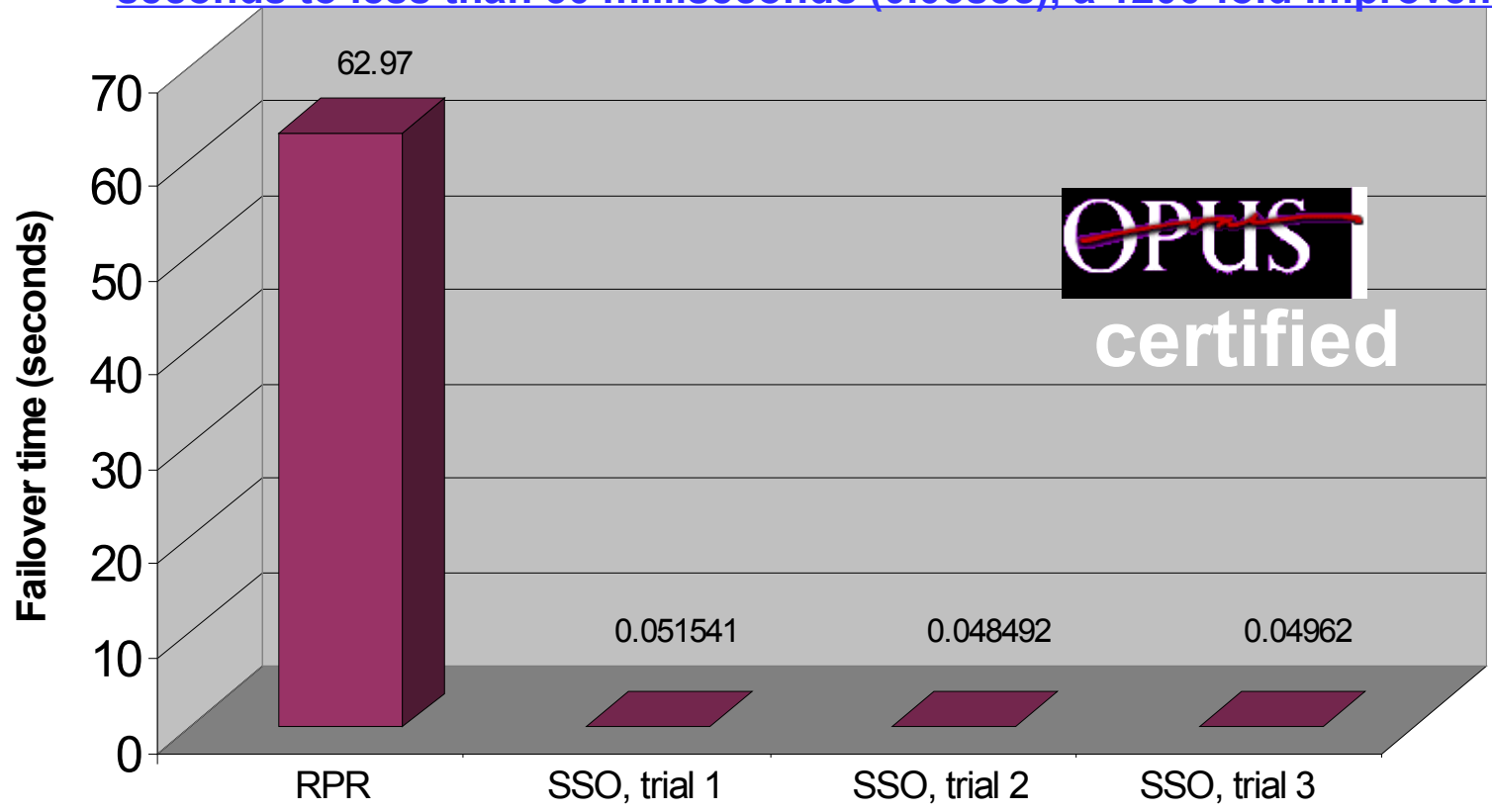
# Catalyst 4500 Series- Upsell to Redundant Supervisors -Independent High Availability Testing

Cisco.com

*Catalyst 4507R with two Supervisor Engines IV, PoE enabled line cards, Smartbits*

## Opus Testing Quote-

“SSO redundancy mechanism reduces recovery time from approximately 60 seconds to less than 50 milliseconds (0.05sec), a 1200-fold improvement ...”



# Flexible SMB Specific Line Card Options

## Designed for more granular port densities

**New for  
SMB**

- **24-Port 10/100 (RJ-45)**  
**Data Only**
- **24-Port 10/100/1000 (RJ-45)**  
**Data Only**
- **24-Port 10/100 (RJ-45) PoE**  
**Cisco Prestandard & 802.3af**
- **24-Port 10/100/1000 (RJ-45) PoE**  
**Cisco Prestandard & 802.3af**
- **6-Port 10/100/1000 PoE (RJ-45) or SFP**  
12 Physical Ports - Up to 6 active  
Mix & Match 10/100/1000 or SFP  
Jumbo Frame Support  
Wire Speed



**New**



**Price  
Reduced**



**New**



**New**



**New**

**RJ-45 SFP  
(Alternative Wired)**

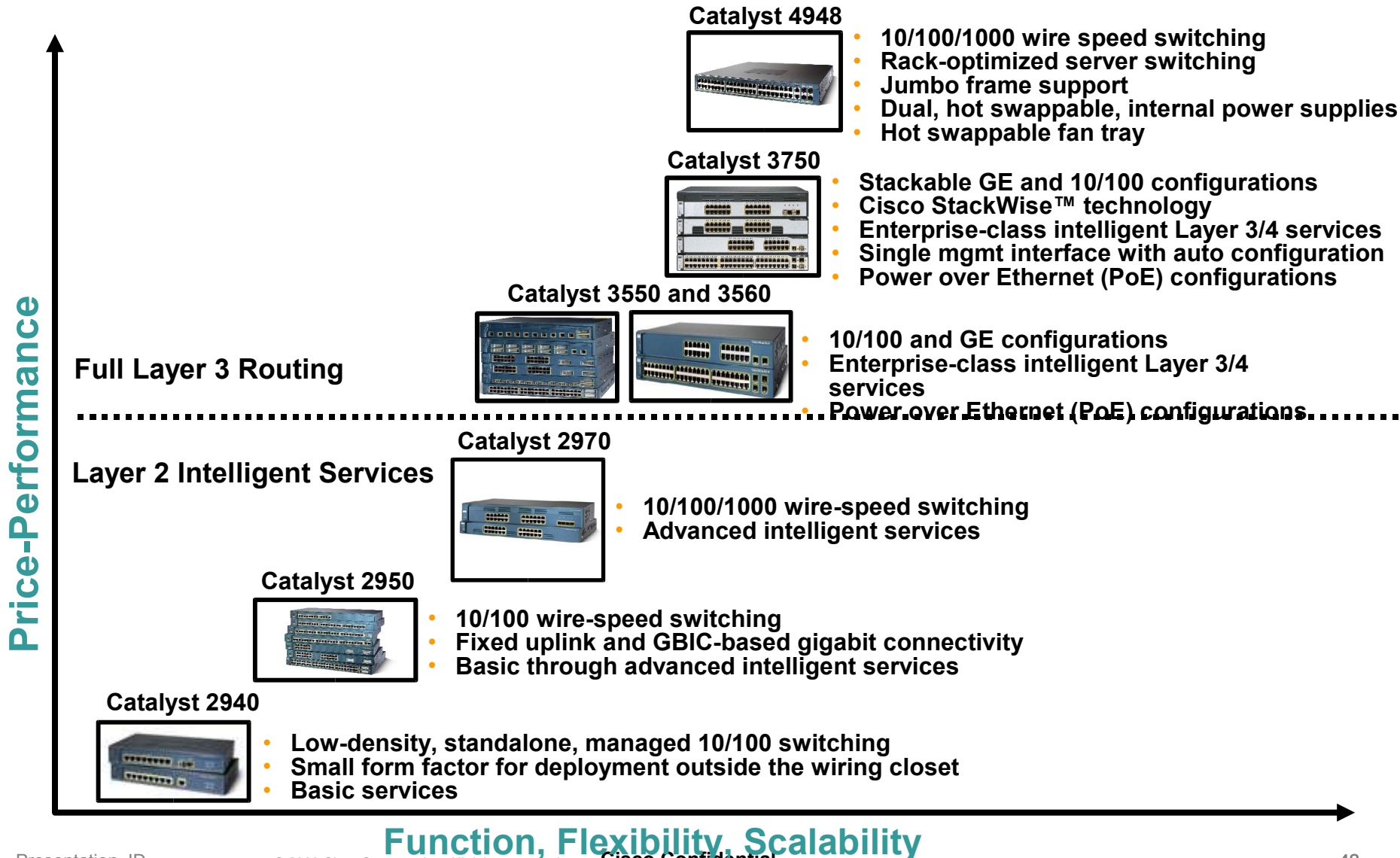




# Fixed Configuration LAN Switches

# Most Complete Line of Fixed Configuration LAN Products in the Industry

Cisco.com



# Introducing the Catalyst 4948

## Rack Optimized Server Switching

Cisco.com

- Non-Blocking 48 ports of 10/100/1000 with 4 SFP uplinks (alternative wired)
- 1 RU form factor for aggregation of high performance servers & workstations
- IOS/CEF based Layer 2/3/4 switching on all ports (SMI & EMI versions)
- Dual, hot swappable, internal power supplies (AC or DC options)
- Hot Swappable Fan Tray
- Low Latency (5.8 microseconds for 64 byte packets)
- Jumbo frames on all ports
- Broadcast and Multicast Suppression in Hardware for all ports (L2/3)
- Non-Stacking
- Based on Catalyst 4500 Series HW and SW Architecture



## Catalyst 4948



# Catalyst 3750 Series

# Cisco Catalyst 3750 Series Switches— Current Models

Cisco.com

## Catalyst 3750G-24T



- 24 10/100/1000 ports

## Catalyst 3750G-24TS



- 24 10/100/1000 ports
- 4 SFP ports

## Catalyst 3750G-12S



- 12 SFP GE ports

## Catalyst 3750-24



- 24 10/100 ports
- 2 SFP ports

## Catalyst 3750-48



- 48 10/100 ports
- 4 SFP ports

## Two Software Versions

### Standard Multilayer Software Image (SMI)

- Enterprise-class intelligent services: advanced QoS, security, high availability, routed ACLs, HSRP, RIP, and static IP routing

### Enhanced Multilayer Software Image (EMI)

- SMI feature set plus: dynamic IP unicast routing, smart multicast routing, Policy Based Routing, Advanced Security features

# Cisco Catalyst 3750 Series Switches

Cisco.com

## Catalyst 3750G-16TD



- 16 10/100/1000 ports
- 1 10GE XENPAK port

## Two Software Versions

### Standard Multilayer Software Image (SMI)

- Enterprise-class intelligent services: advanced QoS, security, high availability, routed ACLs, HSRP, RIP, and static IP routing

### Enhanced Multilayer Software Image (EMI)

- SMI feature set plus: dynamic IP unicast routing, smart multicast routing, Policy Based Routing, Advanced Security features

## Catalyst 3750-24PS



- 24 10/100 ports
- 2 SFP ports
- 802.3af

## Catalyst 3750-48PS



- 48 10/100 ports
- 4 SFP ports
- 802.3af

# Cisco Catalyst 3750 GE Series

## NEW PRODUCTS



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- 24 10/100/1000 ports
- 4 SFP ports
- 1 RU



- 48 10/100/1000 ports
- 4 SFP ports
- 1 RU

### Description

Catalyst 3750 24 10/100/1000 + 4 SFP Standard Multilayer Image

Catalyst 3750 24 10/100/1000 + 4 SFP Enhanced Multilayer Image

Catalyst 3750 48 10/100/1000 + 4 SFP Standard Multilayer Image

Catalyst 3750 48 10/100/1000 + 4 SFP Enhanced Multilayer Image

### Two Software Versions

#### Standard Multilayer Software Image (SMI)

- Enterprise-class intelligent services: advanced QoS, enhanced security, high availability, RIP, static IP routing, Routed ACLs, HSRP.

#### Enhanced Multilayer Software Image (EMI)

- SMI feature set plus: dynamic IP unicast routing, smart multicast routing, PBR, Private VLANs, Advanced security



# Cisco Catalyst 3750 GE PoE Series

## NEW PRODUCTS



Cisco.com



- 24 10/100/1000 ports
- 4 SFP ports
- 802.3af; 1RU



- 48 10/100/1000 ports
- 4 SFP ports
- 802.3af ; 1RU

### Description

Catalyst 3750 24 10/100/1000 PoE + 4 SFP Standard Multilayer Image

Catalyst 3750 24 10/100/1000 PoE + 4 SFP Enhanced Multilayer Image

Catalyst 3750 48 10/100/1000 PoE + 4 SFP Standard Multilayer Image

Catalyst 3750 48 10/100/1000 PoE + 4 SFP Enhanced Multilayer Image

### Two Software Versions

#### Standard Multilayer Software Image (SMI)

- Enterprise-class intelligent services: advanced QoS, enhanced security, high availability, RIP, static IP routing, Routed ACLs, HSRP.

#### Enhanced Multilayer Software Image (EMI)

- SMI feature set plus: dynamic IP unicast routing, smart multicast routing, PBR, Private VLANs, Advanced security

# Catalyst 3750 Delivers Innovations

Cisco.com

## Innovation

- **Benefits over off-the-shelf Silicon**

- **Quality**
- **Hardware Acceleration**
- **Advanced Features**

**15+ patents pending**  
**2 new ASICs**  
**32 Gbps stacking**  
**Stack automation**  
**Stack as a logical unit**  
**Resilient stack connector**

**WINNER:**  
**N+I Japan**  
**Grand Prix**  
**Best of Show**

**5-Star**  
**Product Rating**  
**in CRN tests**

# Cisco Catalyst 3750 Series

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- Enterprise-class services

**High Availability:** IP Routing, HSRP, STP enhancements, 802.1s/w, IGMP snooping

**Security:** ACL, port security, DHCP Snooping, RADIUS/TACAC+, 802.1x, SSHv2, SNMPv3, IPv6

**Advanced QoS:** Layer 2–4 QoS with CoS/DSCP, Shaped round robin, strict priority queuing

**GE & FE Configurations** with **up to 38.7Mpps** routing & switching

- Cisco StackWise technology

**32Gbps fault tolerant bidirectional stack interconnection**

**Master/slave architecture with 1:N master failover**

**Less than 1 second Layer 2 failover with nonstop forwarding**

**Less than 3 second Layer 3 failover with noninterrupt forwarding**

**Cross-stack EtherChannel®**, cross-stack QoS

**Single network instance (IP, SNMP, CLI, STP, VLAN)**



# Cisco Catalyst 3750 Series

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- **Intelligent Power over Ethernet**

**Ability to support both Cisco prestandard PoE and IEEE 802.3af**

**Intelligent power management features**

- **Ease of management**

**One IP address and configuration file for entire stack**

**Extends Web-based cluster management suite to Layer 2/3/4 services**

- **Ease of deployment**

**Automatic configuration of new units** when connected to the stack

**Automatic Cisco IOS® version check** of new units with ability to load images from master Flash

**Auto-MDIX and express Web setup** for ease of initial deployment



# Cisco StackWise Technology

Cisco.com

**32 Gbps stack interconnect**

**Stack up to 9 units**

**Separate stacking port**

**1:N master redundancy**

**Autoconfiguration and Cisco IOS  
version check/update**

**Cross-stack EtherChannel and  
QoS**

**Line-speed performance with QoS  
and ACLs for gigabit Ethernet**

**Hot add and delete of gigabit  
Ethernet and Fast Ethernet  
chassis in same stack**

**Patented cable connector**

**Unified stacking, behaving as a single unit**



# Cisco StackWise Technology

## Stack Functions

Cisco.com

Automatic master election (based on 12 criteria)

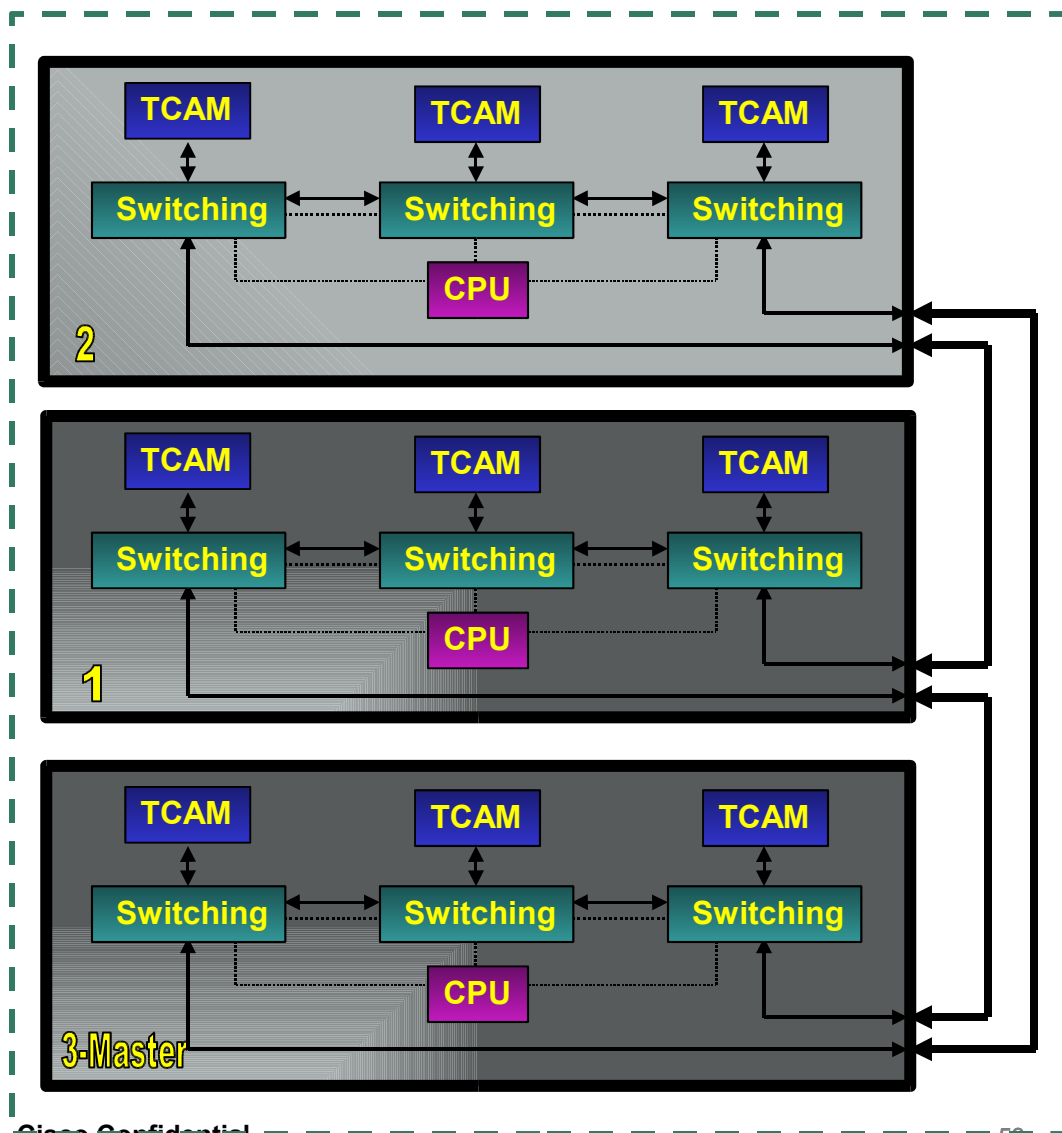
Single instance to the network (IP, SNMP, STP, CLI)

Advanced stacking resiliency failover and healing

Smart multicast improves performance of multicast applications

Better control of traffic flow configurable parameters

Load sharing across bidirectional rings





# Cisco Eases Deployment of Remote Infrastructure with Automation

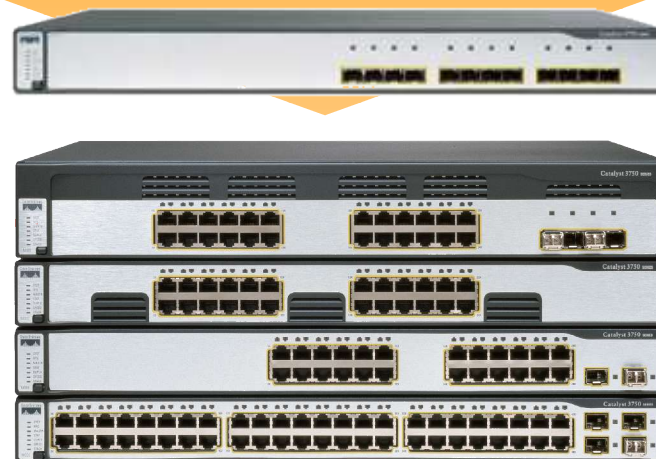
Cisco.com

- Automatic Cisco IOS version check of new units with ability to load images from master Flash
- Automatic configuration of new units with global configuration when connected to the stack
- Stack managed with single IP address
- Hot add and delete of switches – auto-reconfiguration
- **NEW** Offline Member Config allows user to provision switch before physically adding it to the stack

- 1) Check Cisco IOS version
- 2) Download new Cisco IOS version from master Flash
- 3) Download stack configuration file from master
- 4) Bring unit online



**Single IP Address**  
**10.0.1.25**







# Catalyst 3560 Series

# Cisco Catalyst 3560 10/100/1000 Switches



Cisco.com

## Catalyst 3560G-24TS

## Catalyst 3560G-48TS



- 24 10/100/1000 ports
- 4 SFP ports



- 48 10/100/1000 ports
- 4 SFP ports

## Two Software Versions

- Standard Multilayer Software Image (SMI)
- Enhanced Multilayer Software Image (EMI)

## Catalyst 3560G-24PS

## Catalyst 3560G-48PS



- 24 10/100/1000 ports
- 4 SFP ports
- 370W IEEE 802.3af / Cisco prestandard PoE



- 48 10/100/1000 ports
- 4 SFP ports
- 370W IEEE 802.3af / Cisco prestandard PoE

## Power over Ethernet

- IEEE classification supported
- 370W PoE for 24-port & 48-port configurations
  - 24 Class 3 devices (15.4W)
  - 48 Class 2 devices (7W)
- Cisco Intelligent Power Management Capabilities

# Cisco Catalyst 3560 Series Model Overview

Cisco.com

## Catalyst 3560-24PS



- 24 10/100 ports PoE
- 2 SFP ports

## Catalyst 3560-48PS



- 48 10/100 ports PoE
- 4 SFP ports

## Catalyst 3560G-24TS

**NEW**



- 24 10/100/1000 ports
- 4 SFP ports

## Catalyst 3560G-48TS

**NEW**



- 48 10/100/1000 ports
- 4 SFP ports

## Catalyst 3560G-24PS

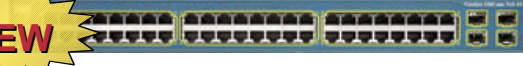
**NEW**



- 24 10/100/1000 ports
- 4 SFP ports
- 370W IEEE 802.3af / Cisco prestandard PoE

## Catalyst 3560G-48PS

**NEW**



- 48 10/100/1000 ports
- 4 SFP ports
- 370W IEEE 802.3af / Cisco prestandard PoE

## Two Software Versions

### • Standard Multilayer Software Image (SMI)

Enterprise-class intelligent services: Advanced QoS, enhanced security, high availability, static and Routing Information Protocol (RIP) IP routing

### • Enhanced Multilayer Software Image (EMI)

SMI feature set plus: Advanced hardware-based IP unicast and multicast routing, policy-based routing (PBR), and Web Cache Communication Protocol (WCCP)

### • Orderable with either software image

### • Upgrade license available

# Cisco Catalyst 3560 Series Switches

## Positioning

Cisco.com

- **Enterprise-class, fixed configuration, multilayer switching line optimized for access layer deployments requiring IEEE 802.3af or Cisco® prestandard Power over Ethernet**
  - Fast Ethernet and Gigabit to the desktop configurations
  - Ideal for small enterprise wiring closets and branch office environments
- **Enables the deployment of network-wide intelligent services**
  - Availability
  - Enhanced security
  - Advanced quality of service (QoS)
- **Intelligent power management features enhance PoE capabilities**
- **New Express Setup** and Cisco Network Assistant software supports easy deployment and configuration
- **Familiar Cisco IOS® Software**
- **Uses Cisco ASICs for superior hardware and software integration, and innovative features**

# Catalyst 3560 Series

## Product Overview

Cisco.com

- Enterprise-class services

Availability: IP Routing, HSRP, STP enhancements, 802.1s/w, IGMP snooping

Security: ACLs, port security, 802.1x (IBNS), SSH, SNMPv3, ACLs, RADIUS/TACACS+, DHCP snooping, Dynamic ARP inspection, IP source Guard

Advanced QoS: L2-L4 QoS with CoS/DSCP, Shaped Round Robin, Strict Priority Queuing, Auto-QoS for VoIP

IPv6 hardware capability

GE & FE configurations – Performance **up to 38.7Mpps** routing & switching

- Power over Ethernet

Ability to support both Cisco prestandard PoE and IEEE 802.3af

Intelligent power management features maximize and prioritize available power

- Ease of deployment and management

Web-based Express Setup simplifies initial configuration

Cisco Network Assistant configuration wizards simplify configuration of Layer 3/4 services

Boots as a traditional Layer 2 Catalyst switch, configurable for Layer 3 routing and services

Auto-configuration through DHCP

- Small form factor pluggable (SFP) uplinks

SX, LX, ZX, 1000BaseT, CWDM options

# Catalyst 3750 and Catalyst 3560 Comparison

Cisco.com

- Catalyst 3750 is optimized for multi-switch deployments in the same physical location.
  - 32-Gbps Stack Interconnect
  - Single management entity
  - 1:N Master Redundancy
  - Autoconfiguration and Cisco IOS® version check
  - Cross-Stack EtherChannel
  - Hot add and delete of members
- Catalyst 3560 complements the 3750 and is optimized for standalone deployments with a subset of 3750 features
  - 802.3af POE
  - IPv6 capable
  - Similar IOS features to the 3750

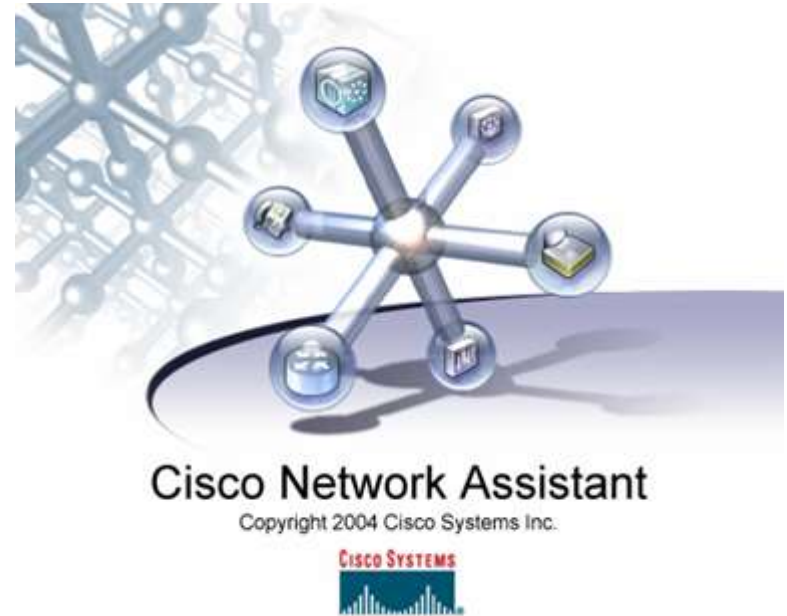


# Cisco Network Assistant

Cisco.com

**The Cisco Network Assistant is an entry-level, GUI-Based, SMB network management Single Point of Management**

- **Easy/Accurate Configuration**
- **Simplified Troubleshooting Assistance**
- **Supports Catalyst 3750, 3560, 3550, 2970, 2950, and 2940 Series**
- **Added Support for the Catalyst 4503/4506**

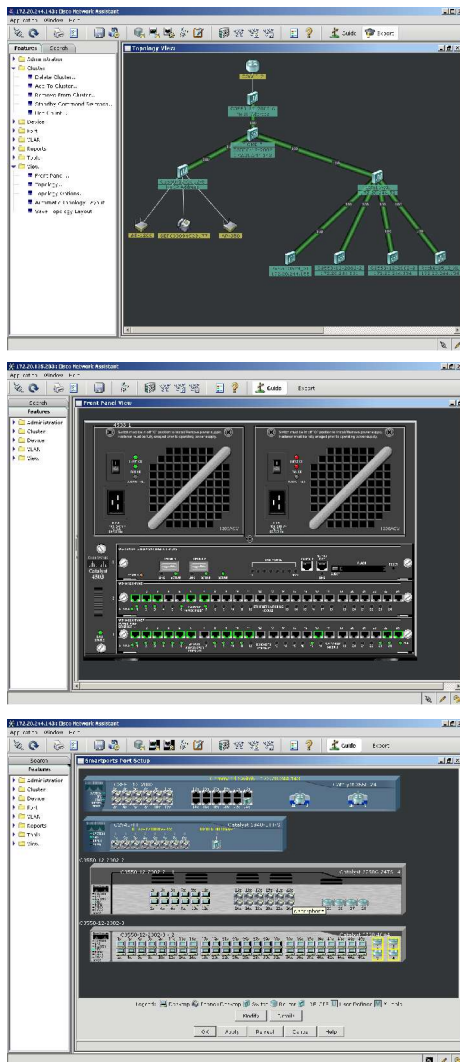


**At No Additional Charge**



# Cisco Network Assistant addresses the needs of both users and resellers

Cisco.com



## Single Point of Management

- Auto discovery of Cisco devices: Switches, Routers, Access Points and IP Phones
- Displays physical network topology
- Launch point for other embedded Cisco device managers

## Easy and Accurate Configuration

- Offers configuration tools & wizards
- Take advantage of proven Cisco Best Practices with no Cisco IOS knowledge – **Cisco SmartPorts**

## Simplified Network Health Checking

- Easy updating of IOS-based switch software images
- Real time reporting and inventory information

## Simplified Troubleshooting Assistance

- Troubleshooting tools
- Single view of network for health status
- Integrated with Cisco.com for automated application updates

# Smartports

## From this:

**Global Commands**

- failureserrdisable recovery cause link-flap
- errdisable recovery cause udd
- errdisable recovery interval 60
- vtp domain [smartports]
- vtp mode transparent
- udld aggressive
- spanning-tree mode rapid-pvst
- spanning-tree loopguard default
- spanning-tree extend system-id

**Interface Commands**

- default interface range FastEthernet[1]/0/[1 - 48]
- interface range FastEthernet[1]/0/[1 - 48]
- switchport access vlan [data]
- switchport mode access
- switchport voice vlan [voice]
- switchport port-security
- switchport port-security maximum 3
- switchport port-security violation restrict
- switchport port-security aging time 2
- switchport port-security aging type inactivity
- auto qos voip cisco-phone
- spanning-tree portfast
- spanning-tree bpduguard enable

## To this:

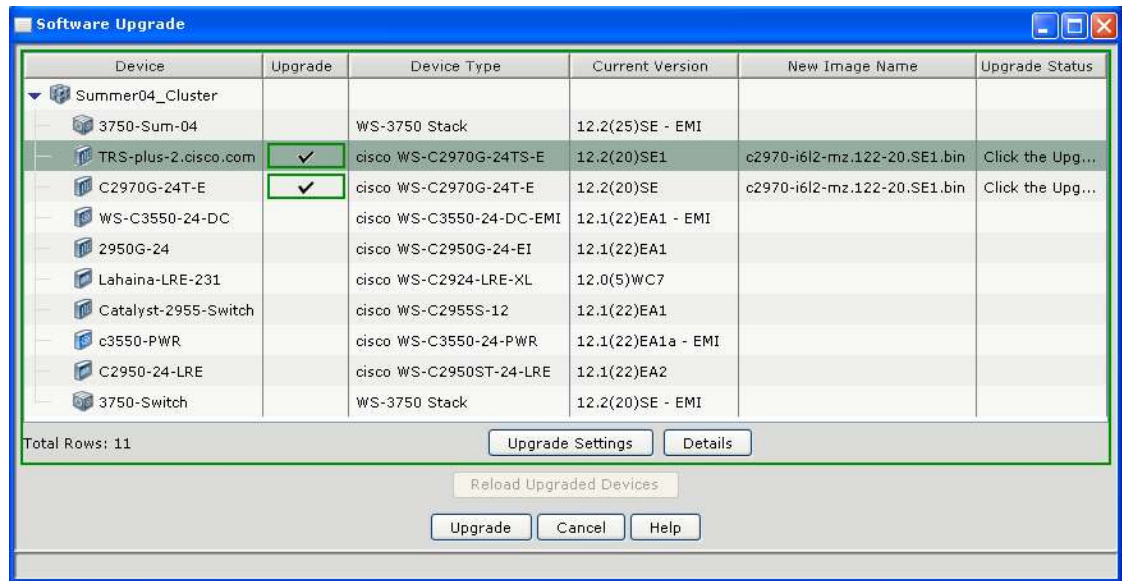
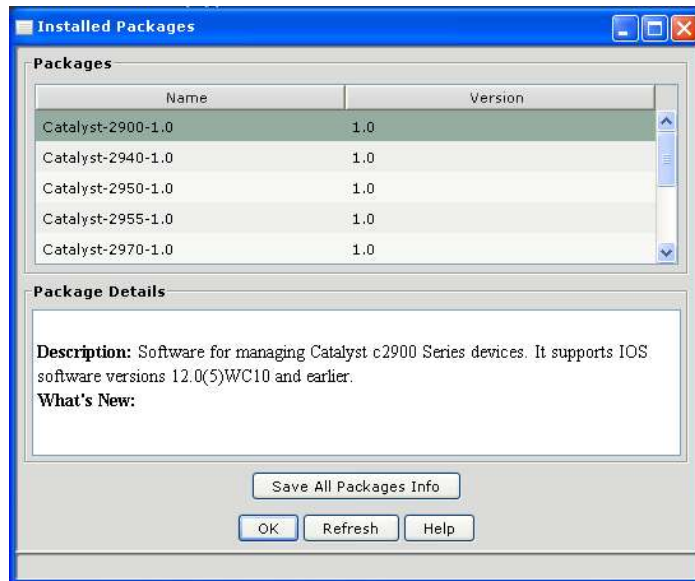


# Simple Application and IOS Updates

Cisco.com

The Network Assistant can update itself via Cisco.com to manage the newest Cisco equipment with the latest management features.

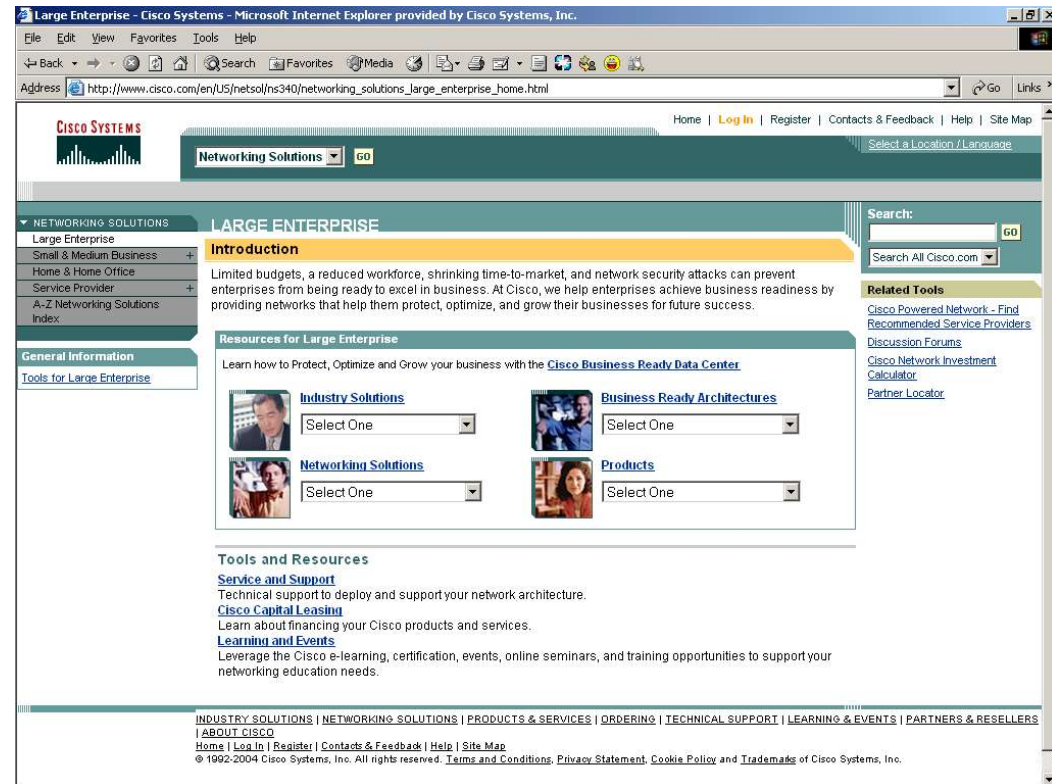
Upgrade your network with the latest IOS using one simple screen.



# Download Network Assistant

Cisco.com

- **Free** download
- Guest Login on Cisco.com**
- No support contract requirements**
- **Answer a few simple questions**
- **Try It Today!**



[www.cisco.com/go/NetworkAssistant](http://www.cisco.com/go/NetworkAssistant)

# Summary

- **Catalyst 6500 Sup32, Linecards**
- **Catalyst 4500 Sup2+TS, SupV-10GE**
- **Catalyst 4948 High Performance Serverfarm Switch**
- **Catalyst 3750 Power over Ethernet 10/100/1000 Stackwise-Switches**
- **Catalyst 3560 Power over Ethernet 10/100/1000 Standalone-Switches**
- **Cisco Network Assistant**

# CISCO SYSTEMS



EMPOWERING THE  
INTERNET GENERATION